

SECTION 502 – ELEVATED STEEL WATER TANK

1. GENERAL

Work under this section consists of designing, furnishing and erecting an elevated steel water tank, complete with all appurtenances and accessories as specified herein. Work also includes the design, furnishing and construction of a foundation for this tank.

2. GENERAL REQUIREMENTS

A. Except as otherwise specified, all design, fabrication, erection and testing shall conform to applicable requirements of AWWA Standard Specification D100; and said standard requirements are hereby made a part of these specifications to the same extent as though set forth at full length herein.

B. Each bidder shall submit with his proposal a sketch of the tank showing major dimensions and plate thickness upon which his bid is based and a sketch of the foundation showing preliminary dimensions, pile information, etc..

C. The successful bidder shall furnish the Owner with six complete sets of detailed Drawings of the tank and foundation. A professional engineer registered in the State of Kansas shall seal these drawings.

D. Bids shall be received only from experienced tank contractors who have furnished and erected at least ten single pedestal steel elevated tanks of equal, or greater, capacity. A letter shall accompany the Contractor's proposal listing ten such examples.

E. The tank contractor shall employ the services of a welding supervisor independent of the tank erection foreman's jurisdiction. All welders shall be qualified by ASME requirements in all positions. Inspection procedures shall be in strict accordance with Section 11 of AWWA Standard D100.

3. DETAILED REQUIREMENTS

The elevated water tank shall conform to the following outline of detailed requirements.

A. Capacity – 500,000 U.S. Gallons.

B. Height, top of foundation to overflow – 159 feet.

C. Range of Head, approximately – 37 feet.

D. Tank Shape – Single pedestal spheroid shaped.

E. Diameter of Supply Pipe – 12"

F. Diameter of Overflow and Drain Pipe – 8"

G. Maximum Soil Bearing Pressure – See Soil Boring Report.

H. Corrosion Allowance – None.

I. Painting – See Section 8, entitled “Painting”.

J. Snow Load – 25 p.s.f. of the horizontal projection of the tank for surfaces having a slope of 30° or less with the horizontal. Snow loads shall be neglected for surfaces with a greater slope.

K. Location - The site is near the intersection of Centennial Road and Wall Street.

L. Transportation Facilities – Union Pacific Railroad; Missouri Pacific Railroad; Atchison, Topeka and Santa Fe Railway; plus trucking companies operating over I-70, I-135, and U.S. 81 Highways.

M. Electric Power – Kansas Power & Light Co.

4. ACCESSORIES

The Contractor shall furnish and install the following accessories:

A. A vent of adequate size to handle pressure differential caused when pumping or withdrawing water at a maximum rate. The overflow pipe shall not be considered in the design of this vent. This vent shall be screened in accordance with the Kansas State Department of Health and Environment current regulations.

B. An access tube, 42” diameter, shall be provided from the top of the pedestal to the tank roof. A manhole (18” x 24” Minimum) shall be provided at the base of this tube for access to the tank interior.

C. Ladders in pedestal, access tube, and tank. A ladder safety device meeting OSHA Standards is an acceptable alternate for safety cages.

D. A 36” x 80” steel plate access door located in the supporting pedestal, complete with a dead bolt locking device.

E. A manhole giving access to at least two painter’s rings located at the top of the Pedestal. There shall be a platform inside the pedestal at this point.

F. Two 30-inch diameter hinged rainproof hatches. One shall be at the top of the access tube with chain, hook and inside handle. The other shall be adjacent to the access tube for entry into the tank and shall have a handle and hasp. The hatch openings shall have a curb four inches high and the cover shall have a downward overlap of two inches.

G. A 24” diameter flanged roof hatch located adjacent to the access tube and constructed so that an exhaust fan may be bolted to the hatch for ventilation during painting. This roof hatch shall be designed in accordance with the Kansas

State Department of Health and Environment current regulations.

H. Double obstruction light, enclosed in aviation red obstruction light globes, complete with photo-electric cell, conduit and wire to a junction box in the base of the pedestal of the tank, as approved by FAA. The Owner will bring electrical power to the base of the pedestal and make connection to the junction box.

I. Five interior waterproof light sockets with conduit, wiring, and switch shall be provided inside of the pedestal and access tube. There shall be one light located at the top of the access tube; one light near the top of the pedestal below the tank; one light at the midpoint of the supporting pedestal; one light at the junction of the pedestal cylinder and the truncated cone; and one light in the base cone. The conduit and wiring shall terminate with a junction box in the base of the pedestal. Electrical service shall be provided and connected to this junction box by the Owner.

5. PIPE CONNECTIONS

The contractor shall furnish and install a 12" C.I. flanged base elbow (long radius) at the base of the riser pipe. The 12" diameter riser pipe shall be provided from the bottom of the tank to the base elbow. This riser pipe shall have an expansion joint above the base elbow. The Contractor shall design and furnish the reinforced concrete support for this flanged base elbow. The Owner will perform all piping from the base elbow to the water supply on Centennial Road.

The Contractor shall furnish and install an 8" drain/overflow pipe that extends down the inside of the access tube and pedestal.

Provisions shall be made by the Contractor to allow the supply and overflow/drain piping to be installed through the tank foundation. Contractor shall extend drain/overflow piping to a point ten feet (10') outside of the foundation wall. The minimum depth of cover for the drain/overflow piping outside the foundation wall shall be 3.5 feet.